

84254

S/076/60/034/009/019/022
B015/B056

24.7700

AUTHORS:

Sotnikov, V. S. and Belanovskiy, A. S.

TITLE:

Ion Adsorption of Some Metals During the Etching and the Washing of Silicon

PERIODICAL:

Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 9,
pp. 2110-2114

TEXT: The electrical properties and the stability of crystalline semiconductor diodes and triodes essentially depends on the surface of the semiconductor. V. I. Lyashenko and I. I. Stepko (Ref. 1) investigated the adsorption of some substances, as well as their influence upon the surface charge and conductivity of semiconductors. As the hydrofluoric and nitric acids, the lyes, and also the rinsing water used for silicon etching may contain admixtures such as iron, copper, and other heavy metals in quantities from $1 \cdot 10^{-5}$ to $1 \cdot 10^{-3}\%$, the adsorption of Cu, Ag, Au, In, Sb, P, Fe, Zn, Rb, and Na on the surface of the silicon was investigated with the aid of the corresponding radioisotopes. As samples, p-type silicon foils were used, which were etched in the etching solutions

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Ion Adsorption of Some Metals During the
Etching and the Washing of Silicon

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considerably reduces the number of elements adsorbed on the silicon surface (Table 4), and that in this way the semiconductor surfaces may be purified. There are 2 figures, 4 tables, and 6 references: 2 Soviet and 4 US.

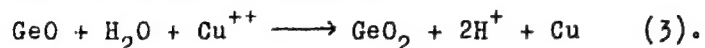
SUBMITTED: January 15, 1959

Card 3/3

Adsorption of ...

S/076/61/035/003/003/023
B121/B203

germanium metal or germanium monoxide formed besides GeO_2 in the etching of the germanium surface with H_2O_2 acts as electron source on the germanium surface. The derivatives of divalent germanium are strong reducing agents, especially in the hydrated form. Hydrated germanium monoxide reduces the metals from the solution with simultaneous conversion to germanium dioxide according to the equation:



The separation of metals on the germanium surface was also microphotographically examined under an electron microscope. At a metal concentration in the solution of 10^{-5} - $10^{-2}\%$, adsorption attains a value of 10^{16} - 10^{18} at/cm² of the germanium surface. There are 5 figures, 1 table, and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The three references to English-language publications read as follows: E. Clark, Phys. Rev., 91, 765, 1953; J. Law, J. Phys. Chem., 59, 67, 1955; S. Eriksen, H. Statz, J. Appl. Phys., 28, 1, 1957.

SUBMITTED: April 12, 1959

Card 2/2

21981

S/020/61/137/005/025/026

B103/B208

Adsorption of ions of some metals ...

publications. The authors used in their experiments polished laminae, $3 \times 3 \times 0.25$ mm, from germanium and silicon of the n- and p-type. They were oriented in the plane 111, and had a resistivity of 15 Ohm·cm. The following etching reagents were used: 30% H_2O_2 and 10% KOH solutions, and a mixture of HF (42%) and HNO_3 (60%) in a ratio of 1 : 4, in which radioactive indicators were introduced in the form of nitrates and chloric salts. The specific activity of the solutions in the individual experiments ranged from 0.1 to 5 m curies/ml. The activity of the etching reagent was first determined 0.01 ml of it were placed into a square cavity (3×3 mm) of the paraffin layer on a little aluminum dish, and the activity measured considering the autoabsorption of the β -radiation in the liquid. In the following the activity of one side of the sample (the other side was polished) was determined at equal dimensions. Ge and Si were etched in an aliquot of the etching reagent for 3.0 min at room temperature in a HF- HNO_3 mixture, and by heating in H_2O_2 and in KOH. The rest of the radioactive corrosive was rinsed from the surface of the samples with ethanol, and the activity of the samples was measured after drying on filter paper. The results for Ge are summarized in Table 1. They indicate that at the

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21981

S/020/61/137/005/025/026

B103/B208

Adsorption of ions of some metals ...

organic complex formers are most suitable for this purpose, since their traces may be washed off by high-purity organic solvents (CCl_4 , chloroform, benzene, and others). The use of water and, as a result, an additional contamination by adsorption could thus be avoided. Treatment of pn-junctions of Si with acetonitrile reduced the inverse current in the collector to $1/2 - 1/4$, and increased the stability of the device. There are 3 figures and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The 3 most recent references to English language publications read as follows: J.T. Law (Ref. 1: J. Phys. Chem., 59, 1, 67, 1955), J.T. Law, P.S. Meigs (Ref. 2: App. Phys., 26, 10, 1265, 1955), E. Clarke (Ref. 4: Phys. Rev., 95, 1, 284, 1954).

PRESENTED: September 9, 1960 by A.N. Frumkin, Academician

SUBMITTED: September 20, 1960

Card 4/8

SOTNIKOV, V.S.; BELANOVSKIY, A.S.; NIKISHOVA, F.B.

Adsorption of ions of certain metals from water during silicon
washing. Part 4. Radiokhimiya 4 no.6:725-731 '62. (MIRA 16:1)

(Metals)

(Silicon)

(Adsorption)

L 55337-65 EWP(e)/EWT(m)/EWP(i)/T/EWP(t)/EWP(b) Pq-4 IJP(c) JD/JG/
GS/WH

ACCESSION NR: AT5015393

UR/0000/65/000/000/0149/0154

541.133:54-128.4 :546.289+546.28-121+533.62

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.

TITLE: Adsorption of gold from aqueous solutions on germanium, silicon, and quartz during their washing

SOURCE: AN SSSR, Otdeleniye obshchey i tekhnicheskoy khimii. Soosazhdeniye i adsorbtsiya radioaktivnykh elementov (Coprecipitation and adsorption of radioactive elements). Moscow, Izd-vo Nauka, 1965, 149-154

TOPIC TAGS: gold adsorption, germanium washing, silicon washing, quartz washing, Freundlich equation, chemical etching

ABSTRACT: A study of the adsorption of gold on germanium, silicon, and quartz from aqueous solutions showed that it increases with the time of contact between the samples and the solution, is proportional to the Au content in solution at low concentrations (10^{-7} - 10^{-4} %), and obeys the Freundlich equation ($n = km$). The desorption of gold in water at room temperature and at the boiling point is only partial, indicating that gold is strongly bound to the surface of Ge, Si, and quartz. Gold separates in the elemental state on germanium and is adsorbed primarily in the ionic state on silicon and quartz; in the case of the latter two ad-

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L 55337-65

ACCESSION NR: AT5015393

sorbents, the mechanism may involve displacement of H^+ ions from OH groups entering into the structure of the hydrated surface compounds. Differences in the initial adsorption of gold on silicon and quartz are apparently due to the fact that treatment with the etchant SR-8 (1 pt. HF to 4 pts. HNO_3) produces a rougher surface on quartz than on silicon. It is postulated that the amorphous structure of SiO_2 on the surface of quartz adsorbs gold to a lesser degree than does the crystalline SiO_2 on silicon; a similar relationship is observed in the adsorption of Ag^+ , In^{3+} , and SO_4^{2-} on quartz. Orig. art. has: 10 figures.

ASSOCIATION: None

SUBMITTED: 05Oct63

NO REF SOV: 005

ENCL: 00

OTHER: 003

SUB CODE: IC, G, L

Card

2/2

L 55336-65 EWP(e)/EWT(m)/EWP(i)/T/EWP(t)/EWP(b) Pg-4 IJP(c) JD/
JG/GS/WH

ACCESSION NR: AT5015394

UR/0000/65/000/000/0154/0158

541.183.5:54-128.4:54-145.2:621.79.025:546.289+
546.28+666.192

26
0.1

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.

TITLE: Adsorption of gold from hydrogen peroxide, KOH, and SR-8 during chemical etching of germanium, silicon, and quartz

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Soosazhdeniye i adsorbtsiya radioaktivnykh elementov (Coprecipitation and adsorption of radioactive elements). Moscow, Izd-vo Nauka, 1965, 154-158

TOPIC TAGS: gold adsorption, germanium etching, silicon etching, quartz etching, chemical etching, hydrofluoric acid, nitric acid, potassium hydroxide, hydrogen peroxide

ABSTRACT: The adsorption of gold was studied as a function of the gold concentration in the solution and of the time of contact between the samples and the solution. In the case of H_2O_2 and KOH on germanium and KOH and SR-8 (1 pt. HF to 4 pts. HNO_3) on silicon, the adsorption of gold increases in proportion to its content at concentrations from 10^{-6} to $10^{-3}\%$. On quartz, a slight increase

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L 55336-65

ACCESSION NR: AT5015394

in adsorption from SR-8 as compared to the adsorption from KOH was observed. The adsorption of gold on germanium is somewhat greater from KOH than from H₂O₂, apparently owing to the difference in the electrochemical potentials of germanium in these etchants. A similar relationship was observed in the case of KOH and SR-8 on samples of silicon and quartz, also as a result of the difference in the potentials of silicon (-960 mV in KOH and +200 mV in SR-8). The difference in the adsorption on quartz is explained in terms of the structure of the surface layer. In the study of the adsorption of gold as a function of contact time, it was noted that a slight decrease in adsorption on germanium and silicon from H₂O₂ and SR-8 solutions takes place at the very start. Adsorption from KOH increases with time; this may also be due to a change (drop) in the silicon potential with time. Gold was found to be adsorbed on quartz from KOH approximately 10 times as fast as from SR-8, owing to the difference in the structure of the surface compounds. Orig. art. has: 8 figures.

ASSOCIATION: None

SUBMITTED: 06Jan64

NO REF SOV: 003

ENCL: 00

OTHER: 001

SUE CODE: IC, CC

Card

SR
2/2

L 59594-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD
ACCESSION NR: AP5017459 UR/0020/65/162/005/1105/1108

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.

TITLE: Adsorption of the ions of certain metals from electrolytes during etching of germanium, silicon, and quartz

SOURCE: AN SSSR. Doklady, v. 162, no. 5, 1965, 1105-1108

TOPIC TAGS: germanium, silicon, quartz, ion adsorption, etching, Freundlich equation

ABSTRACT: The article discusses the adsorption of Cu, Ag, Au, In, Sb, and Zn ions from the following etchants: CP (1:4 mixture of 49% HF and 65% HNO₃), 20% KOH on the surface of Ge, Si, and quartz, and 30% H₂O₂ on the surface of Ge. The adsorption was studied as a function of the content of these ions in the solutions and of the time of contact between the samples and the solutions. The adsorption isotherms obtained obey the Freundlich equation over a wide concentration range; constants of the Freundlich equations are tabulated. The degree of adsorption varies with the type of solution in which the adsorption occurs: for example, it was 1-2 orders of magnitude greater in KOH than in CP in all cases. An exami-

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L 59594-65

ACCESSION NR: AP5017459

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nation of the adsorption mechanism leads the authors to the conclusion that the amount of adsorbed substance which separates in the elemental state should be greater than in the case of the ionic state. For instance, on quartz, in which Si is present in the highest valence state, only ionic adsorption can occur; indeed, the adsorption on quartz was lower than on Ge or Si, and did not exceed the value corresponding to a monolayer (about 10^{15} atoms/cm²). It was also found that the conduction type (n or p) of Ge and Si does not affect the adsorption of the elements studied. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 02Dec64

NO REF SOV: 004

ENGL: 00

SUB CODE: IC, NP

OTHER: 004

Card 2/2

L 29035-66 EWP(e)/INT(m)/T/ERP(t)/CII IJR(c) WH/DS/JO

ACC NR: AP6022875

SOURCE CODE: UR/0186/66/008/002/0171/0182

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.

ORG: none

TITLE: On the adsorption of ions¹ of certain metals from electrolytes¹ on the surface of germanium, silicon, and quartz¹

SOURCE: Radiokhimiya, v. 8, no. 2, 1966, 171-182

TOPIC TAGS: germanium, silicon, quartz, adsorption, etched crystal, copper, silver, gold, indium, antimony, zinc

ABSTRACT: The paper offers data on the adsorption of copper, silver, gold, indium, antimony, and zinc ions from the chemical etchants CP (a 1:4 mixture of 49% HF and 65% HNO₃) and 20% KOH on the surface of germanium, silicon, and quartz, and also from 30% H₂O₂ on the surface of germanium, as a function of the content of these metals in the solution and of the etching time. The temperature was 20°C for CP, 107°C (boiling point) for KOH, and 104°C (boiling point) for H₂O₂. The adsorption on quartz was studied in order to elucidate the mechanism of adsorption on silicon, whose surface is usually coated with a thin film of SiO₂, but the results are also independently significant in view of the wide use of quartz apparatus. It is shown that at a content of the above impurities from 10⁻⁵ to 10⁻¹% in the etchants, the adsorption values

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UDC: 541.183.5:54-128.4

L 39085-66

ACC NR: AP6022875

range from 10^{11} to 10^{16} atoms/cm², and that in the indicated systems, these values obey Freundlich's rule and are independent of the type of conduction in germanium and silicon. A mechanism of adsorption of ions from the electrolytes on the surface of germanium, silicon, and quartz is proposed. Orig. art. has: 11 figures.

SUB CODE: 07/ SUBM DATE: 30Dec64/ ORIG REF: 011/ OTH REF: 008

Card 2/2

L 05206-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP7000758

SOURCE CODE: UR/0075/66/021/006/0754/0757

AUTHOR: Sotnikov, V. S. Korolev, N. V. Shumova, V. V. and Korozova, M. N.

ORG: none

TITLE: Use of an emission microspectral method in the analysis of alloys for semiconductor devices

SOURCE: Zhurnal analiticheskoy khimii, v. 21, no. 6, 1966, 754-757

TOPIC TAGS: emission spectrum, indium alloy, gallium alloy, gold alloy

ABSTRACT: A microspectral method for the analysis of the In - Au - Ga and other alloys in specimens weighing less than 0.5 mg is examined. Alloy specimens in tablets 50X150 microns in size were placed on a polished surface of a glass bar, and then the specimens were covered with a copper plate about 1 mm thick which was tapped lightly with a hammer so that the specimens were secured to the surface of the copper plate. Then tablets were secured to the surface layer of the plate. Pellets of standard alloys were similarly secured to a copper plate, and a microspectral analysis was made. Copper wire 0.4 mm in diameter with ends cut at a 130° angle served as the electrode. The distance between one of the electrodes from the surface of the specimen was 1 mm; the second electrode was connected to the copper plate. Orig. art. has: 2 figures and 1 table. [JPRS: 37,177]

SUB CODE: 11,20/ SUBM DATE: 02Jun65 / ORIG REF: 002

Cord 1:1 *gd*

upc: 543-42

ACC NR: AP7007204

SOURCE CODE: UR/0186/66/008/006/0617/0621

AUTHOR: Sotnikov, V. S.; Belanovskiy, A. S.; Trakhtenberg, A. D.

ORG: none

TITLE: On the adsorption of metal ions from H_2O , H_2O_2 and KOH on the surface of electron-hole germanium and silicon junctions

SOURCE: Radiokhimiya, v. 8, no. 6, 1966, 617-621

TOPIC TAGS: adsorption, hydrogen peroxide, potassium hydroxide, pn junction

ABSTRACT: The adsorption of Cu, Ag, Au and In ions from H_2O , H_2O_2 and KOH on parts making up a germanium p-n-p junction (TM-5) and silicon p-n-p (P104-106) and n-p-n (P 101-103) junctions was studied. It is shown that a considerable contamination of the solutions with elements constituting the junction takes place during etching (the amount of impurities in the solutions increases by 2 to 3 orders of magnitude). Thus, adsorption on the junctions is very important, since in contrast to germanium and silicon crystals, etching of the junctions occurs in a solution with a high impurity content. Cu and In impurities, adsorbed by the surface of junctions of types P101-103 and TM-5, cause a considerable increase of I_{CO} (zero collector current). The various distributions of the adsorbed impurities on different parts of junctions of various types were studied by means of autoradiographic photographs. Orig. art. has: 3 tables.

SUB CODE: 20/ 07/ SUBM DATE: 21Jun65/ ORIG REF: 004/ OTH REF: 003
Card 1/1 UDC: 541.183:546.3

ACC NR: AP7007205

SOURCE CODE: UR/0186/66/008/006/0691/0692

AUTHOR: Sotnikov, V. S.; Kuznetsova, M. I.

ORG: none

TITLE: Adsorption of indium, cobalt and zinc ions from acetone on the surface of graphite, germanium, silicon and quartz

SOURCE: Radiokhimiya, v. 8, no. 6, 1966, 691-692

TOPIC TAGS: adsorption, indium, cobalt, zinc, graphite, quartz, germanium, silicon

ABSTRACT: The adsorption of In, Co and Zn from acetone on graphite, germanium, silicon and quartz surfaces was studied as a function of concentration of the impurities and time of contact with the solution at concentrations of 10^{-4} - $10^{-2}\%$ with the aid of In^{114} , Co^{60} and Zn^{65} isotopes. It is shown that the adsorption of indium on graphite, germanium, silicon and quartz obeys the Freundlich equation up to a concentration of $\sim 10^{-3}\%$, and the adsorption of zinc on Ge and quartz, up to $10^{-2}\%$. Adsorption saturation for Zn and Co on Ge, Si and SiO_2 takes place in 5-10 min, and for indium in less than 1 min. The lack of adsorption saturation in the case of graphite plates (which were porous) is attributed to diffusion processes. Values of the adsorption obtained were 10^{14} - 5×10^{15} atoms per cm^2 . Orig. art. has: 2 figures.

SUB CODE: 07/ SUBM DATE: 03Jun66/ ORIG REF: 001

Card 1/1

UDC: 541.183:546.3

DENISENKO, P.A.; MURZIN, L.M.; SOTNIKOV, Ya.I., red.; GULIKOV, A.V., tekhn.red.

[Operations of the heat and electric power plant of the Gorkiy
Automobile Plant] Iz opyta raboty TETs Gor'kovskogo avtomobil'-
nogo zavoda. Moskva, TsBTI avtomobil'noi promyshl., 1958. 40 p.
(MIRA 12:3)

(Gorkiy--Steam power plants)

SKRYNNIK, Vladimir Nikitovich; SOTNIKOV, Ya.I., ved. red.;
PONUROV, M.P., red.

[Design of automatic lines consisting of machine-tool units;
survey of foreign engineering] Proektirovanie avtomaticheskikh
linii iz agregatnykh stankov; obzor zarubezhnoi tekhniki. Mo-
skva, TSentr. in-t tekhniko-ekon. informatsii, 1962. 98 p.
(MIRA 17:7)

SOTNIKOV, Ye.A., inzh.

"Economics of classification stations and organization of car flows" by [kand.tekhn.nauk] P.S.Sokolov. Reviewed by E.A.Sotnikov. Vest. TSNII MPS 21 no.1:62-64 '62. (MIRA 15:2)

1. Oktyabr'skaya zheleznaya doroga, stantsiya Mga.
(Railroads—Hump yards)

SOTNIKOV, Ye.A., insh.

Determining the idle time of cars in connection with accumulation.
Sbor.trud.LII ZHT no.189:114-139 '62. (MIRA 16:7)
(Railroads—Freight cars) (Railroads—Management)

SOTNIKOV, Yevgeniy Aleksandrovich; UGRYUMOV, Georgiy Arkad'yevich;
FARBEROV, Ya.D., inzh., retsenzent; PREDE, V.Yu., inzh.,
red.; VOROTNIKOVA, L.F., tekhn. red.

[Operational planning of the work in a railroad station]
Operativnoe planirovanie raboty na stantsii. Moskva, Trans-
zheldorizdat, 1963. 56 p. (MIRA 16:3)
(Railroads—Management)

ACCESSION NR: AP4044838

S/0280/64/000/004/0187/0190

AUTHOR: Dolyatovskiy, V. A., Sotnikov, Ye. M.

TITLE: One class of teaching machines

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 4, 1964, 187-190

TOPIC TAGS: teaching machine, learning process, computer programming, teaching program,

ABSTRACT: The authors discuss the teaching process and examine the general theory of teaching machines. They recommend that the program of a teaching machine should explain the concepts studied from many aspects, point out to the student his mistakes in the process of learning, and provide means for correcting mistakes and for the formation of logical thought. Such requirements are satisfied by a machine whose teaching program is divided into several branches and which also has a controlling and correcting program. The program for machines of this type has a definite structure whose elements are specific concepts, the branching system of the program, and the system for evaluating the answers. Such machines can be constructed quite simply on the basis of a general-purpose digital computer. A relatively simple machine of this type is briefly described.

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ACCESSION NR: AP4044838

Its block diagram is shown in Fig. 1 of the Enclosure. The machine was built in the form of a table model, and can teach 6 persons a section per hour. A teaching machine of this type can find wide use in colleges for teaching and testing purposes, as well as for investigating various problems in teaching by machines. Orig. art. has: 2 figures and 4 formulas.

ASSOCIATION: none

SUBMITTED: 21Nov63

ENCL: 01

SUB CODE: DP

NO REF SOV: 005

OTHER: 000

Card 2/3

ACCESSION NR: AP4044838

ENCLOSURE: 01

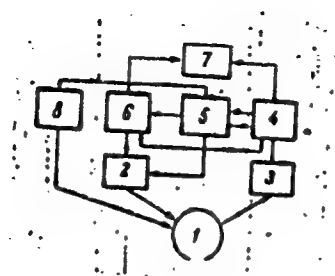


Fig. 1. Block diagram of a teaching machine. 1 - student, 2 - unit giving the teaching program, 3 - device for accepting the answers, 4 - unit for logical analysis and decision, 5 - controlling device, 6 - timing unit, 7 - unit indicating the results, 8 - unit giving the correcting program.

Card 3/3

L 5128-66 EWT(d)/BXT/EWP(1) IJP(c) BB/GG

ACCESSION NR: AP5026302

UR/0144/65/000/008/0881/0890

681.142+62-50

AUTHOR: Dolyatovskiy, V. A. (Aspirant); Sotnikov, Ya. M. (Assistant)

TITLE: Certain principles of learning and machine teaching

SOURCE: IVUZ. Elektromekhanika, no. 8, 1965, 881-890

TOPIC TAGS: teaching machine, circuit design, cybernetics, learning mechanism

ABSTRACT: The number of students at the institutions of higher learning of the Soviet Union increased in 1963 by 1.4 times as compared with the enrollment in 1957. This puts a great stress on the teaching staff and leads to the need for the rationalization of the teaching process. After outlining the basic principles of the learning process, the present authors describe the teaching program for the students of the Industrial Electronics course (which is the fourth in the Automation and Telemechanics curriculum) which then served as the basis for the construction of the appropriate table model electronic teaching machine. The entire course was divided into eight sections each of which was further subdivided into

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ACCESSION NR: AP5026302

three subsections or information units. The article describes the program as well as the design and operation of the teaching machines. This simple teaching machine was used with success in the teaching process. Orig. art. has: 4 formulas, 6 figures, and 2 tables.

ASSOCIATION: [Dolyatovskiy] Institut kibernetiki AN UkrSSR (Institute of Cybernetics, AN UkrSSR); [Sotnikov] Kafedra avtomatizatsii proizvodstvennykh protsessov Rostovskogo instituta sel'khoz mashinostroyeniya (Department of Automation of Production Processes, Rostov Institute of Agricultural Machine Construction)

SUBMITTED: 23Nov63

ENCL: 00

SUB CODE: DP, GO

NO REF SOV: 004

OTHER: 000

CC
Card 2/2

L 5129-66 EWT(d)/BXT/EWP(1) IJP(c) BB/GG
ACCESSION NR: AP5026303

UR/0144/65/000/008/0891/0894
681.142.33

AUTHOR: Dolyatovskiy, V. A. ⁴⁴(Aspirant); Sotnikov, Ye. M. ⁴⁴(Assistant)

68
64
63

TITLE: Electromechanical teaching machine 166, 44

SOURCE: IVUZ. Elektromekhanika, no. 8, 1965, 891-894

TOPIC TAGS: cybernetics, teaching machine, semiconductor device, algorithm

ABSTRACT: In recent years, the teaching process has been investigated from the view-point of cybernetics. The theoretical foundations of algorithmic formulation of the learning processes were laid down earlier by various authors. The realization of the proposed algorithms was carried out on various machines developed for that purpose. The present article describes one of such machines which was developed and put to use by the authors and was shown at the VDNKh exposition of teaching machines in 1964. The programmed course "Industrial Electronics" was divided into 24 sections. The associated 15 - 20 control questions approached the programmed materials from various angles. The material

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ACCESSION NR: AP5024689

field and the measured "resonance" field at the surface. The outer magnetic field, of the order of 3000 oersteds, was parallel to the specimen disk planes. Specimens were initially cooled in zero outer field to 4.2K and $T > T_c$, with subsequent field increase to the point of resonance. Resonance frequencies were of the order of 9200 mc. A substantial discrepancy was found in local fields calculated on the ellipsoid approximation to the disk specimen surface fields, and vs. those measured. Local field strength of the superconductor was found to depend upon magnetization history and thus is apparently generated by internal currents induced in the superconductor by outer field variations. Orig. art has: 2 figures and 1 table. [18]

ASSOCIATION: Fiziko-tehnicheskiy institut im. A.P. Ioffe Akademii nauk SSSR
(Physicotechnical Institute, Academy of Sciences, SSSR)

SUBMITTED: 01Apr65

ENCL: 00

SUB CODE: EM

NO REF SOV: 004

OTHER: 002

ATD PRESS: 4/27

Superconducting alloy 14

Card 2/2

SOTNIKOV, Ya.V.

Evaluation through work of students' knowledge, skills, and habits.
Politekh. obuch. no.7:50-51 JI '59. (MIRA 12:9)

1.Srednyaya shkola No.3, g.Vladimir.
(Vladimir--School reports)

SOTNIKOV, Yu.M., inzh.

Use of epoxy resins at the Zhdanov shipyard. Biul. tekhn.-ekon.
inform. Tekhn. upr. Min. mor. flota 7 no.4:78-85 '62.
(MIRA 16:4)

1. Zhdanovskiy sudoremontnyy zavod.
(Zhdanov—Shipyards)
(Epoxy resins)

ACC NR: AP6034918

SOURCE CODE: UR/0419/66/000/003/0107/0108

AUTHOR: Rubinchik, Ya. S.; Sotnikov-Yushik, Yu. M.

ORG: Institute of General and Inorganic Chemistry, AN BSSR (Institut obshchey i neorganicheskoy khimii AN BSSR)

TITLE: Study of reactions of rare earth oxides with ferric oxide by means of IR spectra

SOURCE: AN BSSR. Vestsi. Seryya khimichnykh navuk, no. 3, 1966, 107-108

TOPIC TAGS: yttrium compound, ytterbium compound, samarium compound, iron oxide, IR spectrum

ABSTRACT: Yttrium, ytterbium and samarium oxides were reacted with Fe_2O_3 at 810-1200° and the sintered products were analyzed by means of IR spectra in the 400-650 cm^{-1} range. The spectra of the oxides, perovskites and garnets containing different rare earth ions were very similar, indicating a slight influence of the element on the IR spectrum of the compounds. The character of the spectrum of the products changes with the firing temperature. The spectra obtained confirm earlier findings for the $\text{Y}_2\text{O}_3+\text{Fe}_2\text{O}_3$ system, viz., that at relatively low temperatures in 3:5 oxides mixtures, the reaction forms a perovskite which, as the temperature is raised further, reacts with excess Fe_2O_3 to form the end product, a garnet. Orig. art. has: 1 figure.

SUB CODE: 07/ SUEM DATE: none/ ORIG REF: 002/ OTH REF: 002

Card 1/1

SOTNIKOVA, A.

Under joint management. Sov.torg. 36 no.12:24-25 D '62.

(MIRA 16:1)

1. Nachal'nik planovogo otдела Voronezhskoy gorodskoy trgovoy
organizatsii po trgovle pishcheproduktami.
(Voronezh—Grocery trade)

CONF 1/5

Chronicle. All-Union Competition for the Best
Students-Paper Concerning Chemistry and Chemical
Technology for the
Soviet Year 1957-1958

[illegible]

Card 4/5

SOTNIKOVA, A. N., AMBARNIKOV, I. M., DANDUROV, YU. V., KHVESHCHENKO, E. N.

"A study of the strains of tick encephalitis isolated in the foci of the Primorye region in 1956-1957." p. 54

Desyatoye Soveshchaniye po parazitologicheskim problemam i prirodnoochagovym boleznyam. 22-29 Oktyabrya 1959 g. (Tenth Conference on Parasitological Problems and Diseases with Natural Foci 22-29 October 1959), Moscow-Leningrad, 1959, Academy of Medical Sciences USSR and Academy of Sciences USSR, No. 1 254pp.

SOTNIKOVA, A.N.; SOLDATOV, G.M.

Isolation of the tick-borne encephalitis virus from the grosbeak
Eophona personata magnirostris Hart. Dokl. Irk. gos. nauch.-issl.
protivochum. inst. no.5:28-29 '63 (MIRA 18:1)

Case of isolation of the neurovirus from chiggers. Ibid.:30

SOTNIKOVA, A.N.

Characteristics of tick-borne encephalitis strains isolated in
Chuguyevka District of the Maritime Territory. Trudy VladJEMG
no.2:24-27 '62. (MIRA 18:3)

1. Iz Primorskoy krayevoy protivochumnyy stantsii.

SOTNIKOVA, A.N.; SOLDATOV, G.M.

Isolation of the virus of tick-borne encephalitis from the flea
Ceratophyllus tamiar wagn. Med. paraz. i paraz. bol. 33 no.5:622-
624 S-O '64. (MIRA 18:4)

1. Primorskaya krayevaya protivochumnaya stantsiya, Ussuriysk.

SOTNIKOVA, A.N.; SOLDATOV, G.M.

Isolation of tick-borne encephalitis virus in jays. Med. paraz. i
paraz. bol. 34 no.1:114-115 Ja-F '65.

(MIRA 18:8)

1, Primorskaya krayevaya protivochumnaya stantsiya, Ussuriysk.

EWT(m)/BDS/ES(b)--AFFTC/ASD--RM/K

L 10777-63

ACCESSION NR: AP3003923

S/0205/63/003/004/0504/0507

56
55

AUTHOR: Sotnikova, A. P.; Sy*tiinskiy, I. A.

TITLE: Effect of total-body x-irradiation¹⁹ on the content of gamma amino butyric acid in brain tissue

SOURCE: Radiobiologiya, v. 3, no. 4, 1963, 504-507

TOPIC TAGS: x-irradiation, x-radiation, gamma amino butyric acid, brain tissue, radiation sickness, sodium amobarbital, glutamic acid, sodium amytal, S-2-aminoethylisothiuronium, cystamines, antiradiation preparation

ABSTRACT: Attempts have been made to correlate the effect of total-body x-irradiation (dosage 1000 r) with the level of gamma amino butyric acid (GABA) in the brain and to estimate the efficacy of survival compounds (e.g., sodium amytal, S-2-aminoethylisothiuronium cystamine) on the organism. The effects of the compounds were investigated by using the GABA as a biochemical index of the processes occurring in the central nervous system during irradiation. An RUM-11 unit (current, 20 mamp; voltage, 180 kv; filters, 0.5-mm Cu and 1.0-mm Al; air dose, 46.7 r; focal length, 30 cm) was employed to deliver a total-body x-irradiation

Card 1/2

L 10777-63

ACCESSION NR: AP3003923

of 1000 r on white rats. No change was detected in the level of GABA and glutamic acid in the brain of the irradiated animals. Application of S-2-aminoethylisothiuronium (40 mg/100 g) evoked spasmodic phenomena with lethal results, attributable to a 22 drop in the GABA level and a 35 drop in the glutamic acid level. The introduction of sodium amobarbital (7 mg/100 g) and cystamine (8 mg/100 g) caused no change in the level of GABA and glutamic acid in the brain of the animals. Orig. art. has: 1 table.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanov
(Leningrad State University)

SUBMITTED: 05Jul62

DATE ACQ: 15Aug63

ENCL: 00

SUB CODE: AM

NO REF SOV: 004

OTHER: 010

Card

2/2

VASIL'TSOV, V.D.; VOLCHENKO, M.Ya.; GERTSOVICH, G.B., kand.ekon. nauk;
ZHARKOV, Ye.I.; KONOVALOV, Ye.A., kand. ekon. nauk; MATVIYEVSKAYA,
E.D.; OLEYNIK, I.P., kand. ekon. nauk; RAYEVSKAYA, E.S.,;
SKVORTSOVA, A.I.; SOKOLOVA, N.V.; SOTNIKOVA, I.A.; TANDIT, V.S.;
TRIGUBENKO, M.Ye.; FIRSOVA, Yu.V.; SHABUNINA, V.I.; YUMIN, M.N.;
STOROSHEV, V.I., kand. istor. nauk, red.; LEPNIKOVA, Ye., red.;
SMIRNOV, G., tekhn. red.

[Economy of the people's democracies in figures for 1960] Ekono-
mika stran sotsialisticheskogo lageria v tsifrakh 1960 g. Pod
red. G.B.Gertsovicha, I.P.Oleinika, V.I.Storozheva. Moskva, izd-
vo sotsial'no-ekon. lit-ry, 1961. 238 p. (MIRA 15:4)

(Communist countries--Economic conditions)

VASIL'TSOV, V.D.; VOLODARSKIY, L.M.; VOLCHENKO, M.Ya.; GALETSKAYA,
R.A.; IROV, N.I.; KARINYA, L.F.; KONOVALOV, Ye.A.;
MATVIYEVSKAYA, E.D.; PETRESKU, M.I.; RUDAKOV, Ye.V.;
SAYFULINA, L.M.; SKVORTSOVA, A.M.; SOKOLOVA, N.M.; SOTNIKOVA,
I.A.; STOLPOV, N.D.; SURKO, Yu.V.; TEN, V.A.; TRIGUBENKO,
M.Ye.; FIRSOVA, Yu.V.; SHABUNINA, V.I.; YUMIN, M.N.;
RYABUSHKIN, T.V., doktor ekon. nauk, otv. red.; ALAMPIYEV,
P.M., red.; PAK, G.V., red.; GERASIMOVA, D., tekhn.red.

[Economy of socialist countries, 1960-1962] Ekonomika stran
sotsializma, 1960-1962gg. Moskva, Izd-vo "Ekonomika," 1964.
261 p. (MIRA 16:12)

1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsiali-
sticheskoy sistemy.
(Communist countries--Economic conditions)

SOTNIKOVA, K..

Method of setting standards for machine turning. Sots.trud 4
no.2:94-99 F '59. (MIRA 12:4)
(Turning) (Production standards)

GRANOVSKIY, Ye.;SOTNIKOVA, K.

New book on technical standardization (Technical standardization
at a machinery manufacturing plant by M. Shadmazarova). Sots. trud.
4 no.10:155-158 0 '59 (MIRA 13:3)
(Machinery industry--Production standards)

POGREBAT'KO, Ye.; SOTNIKOVA, K.

Instruments for determining efficient systems of metal cutting
accepted at the all-union competition. Biul.nauch.inform.:trud
i zar.plata no.6:44-51 '59. (MIRA 12:9)
(Metal cutting)

SOTNIKOVA, K.A., kand. med. nauk; KRASIKOVA, V.A., kand.med. nauk

Indices of arterial pressure in healthy children during the
first three years of life. Vop okhr. materin. det. 8 no.1:
56-59 '63 (MIRA 17:2)

1. Iz kliniki rannego vozrasta (zav. - prof. N.R.Shastin)
Nauchno-issledovatel'skogo pediatricheskogo instituta (dir.
kand. med. nauk V.P.Spirina) Ministerstva zdravookhraneniya
RSFSR.

SHASKOL'SKIY, B.V., kand. tekhn. nauk; SOTNIKOVA, K.F., inzh.;
GAVRILIN, Ye.F.; LUBKOV, A.N.; SAPOZHNIKOV, V.M.; ZHUCHENKO,
L.F.; CHIGIRINA, N.I., tekhnik; ZHARIKOV, I.P., inzh.;
CHERTISHCHEVA, A.Ye.; SHAPOVALOV, V.K., tekhnik; MOROZOV, A.M.,
inzh.; SLIVKO, S.V., tekhnik; CHERNAVSKIY, G.N., kand. tekhn.
nauk; STRUZHESTRAKH, Ye.I., inzh., ed.; EL'KIND, V.D., tekhn.
red.; DEMKINA, N.F., tekhn. red.

[General norms for time and machining conditions used in the
industry for machining on automatic lathes; mass, large-lot
and lot production] Obshcheyemashinostroitel'nye normativy vremen
ni i rezhimov rezaniya na tokarno-avtomatnye raboty; massovoe,
krupnoseriynoe i seriynoe proizvodstvo. Moskva, Mashgiz, 1962.
271 p. (MIRA 15:12)

1. Moscow. Tsentral'noye byuro promyshlennykh normativov po trudu.
(Turning--Production standards)

L 38308-66 EWP(e)/EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/JG/AT/WH
 ACC NR: AP6012745 SOURCE CODE: UR/0122/66/000/004/0064/0069

AUTHORS: Romanov, K. F. (Candidate of technical sciences); Sotnikova, K. F. (Engineer)

ORG: none

TITLE: The effect of the technological conditions of processing on the rate of cutting during the turning of parts made from heat-resistant and titanium materials

SOURCE: Vestnik mashinostroyeniya, no. 4, 1966, 64-69

TOPIC TAGS: heat resistant material, heat resistant steel, titanium containing alloy, metalworking, metalworking machinery

ABSTRACT: Corrective coefficients are applied to the normal cutting rate for the turning of machine parts made from heat-resistant materials. These coefficients take into account the effect of the technological working conditions; they are developed on the basis of studies performed both in laboratories and in industry. Note is made of some discrepancies between the cutting rates predicted from laboratory tests and those recorded in actual industrial conditions. Turnings of various machine parts and various types of cuttings are compared with respect to feed rate. Several parameters were treated as variables, including the thermal processing of the material, the geometric dimensions of the material, the grade and type of material, and the mechanical properties of the material. Note is also made of the

Card 1/2

UDC: 621.9.014.5:669.14.018.14

RUDNEVA, L.N., inzh.; SOTNIKOVA, K.V., inzh.

Manufacturing large asbestos cement sheets on automated equipment.
Stroi. mat. ll no.5:13-14 My '65. (MIRA 18:9)

SOTNIKOVA, L.G., ordinator

Blood proteins in normal and pathological pregnancy as shown by
paper electrophoresis data. Kaz.med.zhur. 40 no.6:79-81 N-D '59.

(MIRA 13:5)

1. Iz kafedry akusherstva i ginekologii No.2 (zav. - prof. Kh.Kh.
Meshcherov) Kazanskogo meditsinskogo instituta.

(BLOOD PROTEINS) (PREGNANCY) (PAPER ELECTROPHORESIS)

DUNAYEVA, V.G.; ISOTNIKOVA, L.G.; YAKUBOVA, Z.N.

Immediate and late results of treating a threatening abortion.
Nauch. trudy Kaz. gos. med. inst. 14:421-423 '64. (MIRA 18:9)

1. II kafedra akusherstva i ginekologii (zav. - prof. Kh.Kh.
Meshcherov) Kazanskogo meditsinskogo instituta.

SOTNIKOVA, L. I.

USSR/Physics - Energy levels

Card 1/1 Pub. 22 - 24/54

Authors : Krasnikov, A. I.; Sotnikova, L. I., and Orlov, L. G.

Title : Transition of the deep energetic levels of ferrous atoms during cold metal deformations

Periodical : Dok. AN SSSR 102/5, 943 - 945, June 11, 1955

Abstract : A study of the displacement of the deep energy levels, L_{II} & L_{III} of ferrous atoms is described. Effect of cold deformations on the displacement of deep energy levels of ferrous atoms is discussed. Three USSR references (1939-1946). Table.

Institute : The Institute of Metallography and the Physics of Metals of the Scientific Research Institute of Ferrous Metallurgy

Presented by : Academician G. V. Kurdyumov, February 23, 1955

LAYNER, D.I., MALYSHEVA, L.A., SOTNIKOVA, L.I.

Silicon-copper catalyzers and prospects for a considerable
economy of copper. TSvet. met. 33 no.8:70-72 Ag '60.

(MIRA 13:8)

(Silicon-copper alloys) (Catalysts)

S/680/61/000/020/00 /013
D204/D302

AUTHORS: Layner, D. I., Malysheva, L. A. and Sotnikova, L. I.

TITLE: Poisons of the Cu-Si alloy catalysts

SOURCE: Moscow, Gosudarstvennyy nauchno issledovatel'skiy i
proyektnyy institut obrabotki tsvetnykh metallov. Sbor-
nik nauchnykh trudov. no. 20, 1961, Metallovedeniye i
obrabotka tsvetnykh metallov i splavov, 14-16

TEXT: The authors studied the inhibiting effect of small addi-
tions of Pb, Sn and Bi on the catalytic activity of 10% Cu, 90%
Si alloys, by measuring the productivity (in g product/kg cata-
lyst/hr) and the percentage yield of Me_2SiCl_2 in the synthesis of
methyl chlorosilanes. The alloys were prepared, in carbon boats,
from Kp1 (Kr1) silicon, MO (MO) copper, CB (SV) lead, O1 (O1) tin
and 'pure' bismuth (according to ТУМХП 3153-54) (ТУМХП 3153-54),
checking the composition by chemical analysis. It was found that
Pb, Bi and Sn poisoned the catalyst when in quantities ≥ 0.003 ,

Card 1/2

... of the ...

S/680/61/000/020/001/013
D204/D302

... 0.005 and $\geq 0.05\%$ respectively. S. A. Golubtsov, I. V. Trofimova
and M. P. Iobusevich aided the authors in the chemical part of
the work. There are 2 tables and 3 Soviet-bloc references.

Card 2/2

✓
—

LAYNER, D.I.; MALYSHEVA, L.A.; SOTNIKOVA, L.I.

Promoting silicon-copper catalysts by antimony. Trudy
Giprotstvetmetobrabotka no.20:17-19 '61. (MIRA 15:2)
(Silicon-copper alloys) (Antimony) (Catalysts)

TURETSKAYA, R.A.; GOLUBTSOV, S.A.; TROFIKOVA, I.V.; ANDRIANOV, K.A.;
Prinimali uchastiye: LAYNER, D.I.; SOTNIKOVA, L.I.;
MALYSHEVA, L.A.

Effect of the admixture of some metals on the activity of
silicon-copper alloys in the reaction with theyl chloride.
Zhur.prikl.khim. 35 no.7:1496-1502 J1 '62. (MIRA 15:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut obrabotki tsvetnykh metallov (for Layner, Sotnikova,
Malysheva).

(Silicon-copper alloys) (Ethane) (Metals)

MYULLER, N. N.; SOTNIKOVA, L. I.

Studying certain properties of copper cathodes deposited in
presence of various surface active additives. TSvet. met. 35
no.10:29-33 0 '62. (MIRA 15:10)

(Copper—Electrometallurgy)

MYULLER, N.N.; SOTNIKOVA, L.I.

Effect of additions of surface-active substances on the structure of
cathodic copper. TSvet. met. 36 no.1:21-22 Ja '63. (MIRA 16:5)
(Copper--Electrometallurgy) (Surface-active agents)

MYULER, N.E.; SOTNIKOVA, I.I.

Effect of surface-active additions on the structure of
cathodic copper. Trudy Giprotsvetmetobrabotka no.24:139-
145 '65. (MIRA 18:11)

SOTNIKOVA, L.L., dots.; SEMENENKO, L.A., sudebnomeditsinskiy ekspert (Khar'kov).

How did you dare? Zdorov'e 6 no.4:24 Ap '60.
(ABORTION)

(MIRA 13:8)

SOTNIKOVA, L.L., kand.med.nauk; TUNINA, E.L., kand.med.nauk (Khar'kov)

Significance of medical documentation in medicolegal expertise
on living persons. Vrach. delo no.11:117-119 N '61. (MIRA 14:11)
(MEDICAL JURISPRUDENCE)

MESHCHEROV, Kh.Kh.; SOTNIKOVA, L.G.

Electrophoretic study of the blood serum in normal pregnancy and late toxicosis. Nauch. trudy Kaz. gos. med. inst. 14:485-486 '64. (MIRA 18:9)

1. II kafedra akusherstva i ginekologii (zav. - prof. Kh.Kh. Meshcherov) Kazanskogo meditsinskogo instituta.

SOTNIKOVA, L.G.

Comparative data on the study of glycoproteins and sialic acid of the blood serum in normal pregnancy and in late toxycosis.
Nauch. trudy Kaz. gos. med. inst. 14:549-550 '64. (MIRA 18:9)

1. II kafedra akusherstva i ginekologii (zav. - prof. Kh.Kh. Meshcherov) Kazanskogo meditsinskogo instituta.

MARTYNOV, M.S.; POTAPOV, V.P., inzh., retsenzent; SOTNIKOVA, M.A.,
inzh., retsenzent; SHISHLYKOV, Ye.S., inzh., red.;
VOROTNIKOVA, L.F., tekhn. red.

[Transportation of perishable goods] Perevozki skoroportia-
shchikhsia Грузов. Moskva, Transzheldorizdat, 1963. 331 p.
(MIRA 16:7)

(Railroads--Freight) (Refrigerator cars)

1. SOTNIKOVA, M.P.
2. USSR (600)
4. Georgiev, Emil
7. "Slavic alphabet before Cyril and Methodius." Reviewed by M.P. Sotnikova, Vop.ist. no. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953, Uncl.

SOTNIKOVA, N.

Clinical medical conferences at Zhlobin. Zdrav. Bel. 7 no.6:68
Je '61. (MIRA 15:2)

(MEDICINE__CONGRESSES)

SHMALIY, K.V.; NAKHMANSON, G.L.; MEL'NIKOV, Ye.L. (Khar'kov); BORINA, M.Ya.
(Kiyev); SOTNIKOVA, N.A.; BORSHCHEVSKIY, M.A. (Odessa)

Primary drug resistance in pulmonary tuberculosis. Vrach. delo no.1:
98-100 Ja '62. (MIRA 15:2)
(TUBERCULOSIS) (BACTERIA, EFFECT OF DRUGS ON)

30V/1700

PHASE I BOOK EXPLOITATION

24(7)

Prof. Universitet

Materialy I Vsesoyuznogo soveshchaniya po spektroskopii, 1956.
t. III. Atomnaya spektroskopiya (Materials of the 10th All-Union
Conference on Spectroscopy, 1956. Vol. 3: Atomic Spectroscopy)
Moscow: Izdat-vo Sverdlovskogo univ., 1958. 568 p. (Series: Iza-
vicheskii sbornik, vyp. 4(9)) 3,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po
spektroskopii.

Editorial Board: G.S. Landsberg, Academician, (Resp. Ed.);
B.A. Reporent, Doctor of Physical and Mathematical Sciences;
I.I. Pabelinskii, Doctor of Physical and Mathematical Sciences;
V.A. Fabrikant, Doctor of Physical and Mathematical Sciences;
V.G. Koritskiy, Candidate of Technical Sciences; S.M. Ryskiy,
Candidate of Physical and Mathematical Sciences; L.K. Klimovskaya,
Candidate of Physical and Mathematical Sciences; V.S. Milyarchuk
(Deceased), Doctor of Physical and Mathematical Sciences; A.Ye.
Glazerman, Doctor of Physical and Mathematical Sciences;
M.I. S.L. Gaser, Tech. Ed.; T.V. Saranyuk.

NOTE: This book is intended for scientists and researchers in
the field of spectroscopy, as well as for technical personnel
using spectrum analysis in various industries.

COVERAGE: This volume contains 177 scientific and technical studies
of atomic spectroscopy presented at the 10th All-Union Confer-
ence on Spectroscopy in 1956. The studies were carried out by
members of scientific and technical institutes and individual
authors. Bibliographies of Soviet and other sources are included.
The studies cover many phases of spectroscopy: spectra of rare earths,
electromagnetic radiation, physicochemical methods for controlling
uranium production, physics and technology of gas discharges,
optics and spectroscopy, abnormal dispersion in metal vapors,
spectroscopy and the combustion theory, spectrum analysis of ores
and minerals, photographic methods for determination of the
analysis of metals and alloys, spectral isotherms, tables, and
hydrogen content of metals by means of spectrographic analysis.
Atlases of spectral lines, spark spectrographic analysis,
statistical study of variation in the parameters of calibration
curves, determination of traces of metals, spectrum analysis in
metallurgy, thermochemistry in metallurgy, and principles and
practice of spectrochemical analysis.

Card 2/31

30V/1700

Materials of the 10th All-Union Conference (Cont.)

Karebach, A.G., Sh.I. Peryulayev, N.L. Silyusheva, M.P.
Shnikova, M.I. Smirnov, A.G. Sazonova, L.S.
Kraus, G.G. Morozova, L.S. Romanovich, I.I. Saifendina,
V.M. Kibakova, S.K. Shamonova, L.I. Pogacheva, V.P.
Mascheva, Ye.P. Voronova, P.D. Gorbachev, P.A. Kostareva,
M.Y. Kostareva, A.I. Kuznetsova, and M.M. Kuznetsova.
Methods of Spectrochemical Analysis of Pure Metal for
Impurities

AVAILABLE: Library of Congress

TM/473
7-4-59

556

Card 31/31

VALITOVA, F.G.; IL'YASOV, A.V.; SOTNIKOVA, N.N.; BAYGIL'DINA, S.Yu.

Electron paramagnetic resonance study of electrochemically
generated radicals of some hydrazines. Zhur.strukt.khim.
6 no.5:777-779 S-0 '65. (MIRA 18:12)

1. Institut organicheskoy i fizicheskoy khimii AN SSSR, Kazan'.

L 31461-66 EWT(m)/EWP(j)/T WW/WW/JND/RM

ACC NR: AP6023111

SOURCE CODE: UR/0379/66/002/001/0142/0143

AUTHOR: Il'yasov, A. V.; Levin, Ya. A.; Sotnikova, N. N.; Valitova, F. G.

85.

8

B

ORG: Institute of Organic and Physical Chemistry, AN SSSR, Kazan' (Institut organicheskoy i fizicheskoy khimii AN SSSR)

TITLE: Electrochemical generation of hydrazyl radicals

SOURCE: Teoreticheskaya i eksperimental'naya khimiya, v. 2, no. 1, 1966, 142-143

TOPIC TAGS: electrochemistry, free radical, hydrazine derivative, electrolytic cell, electron spectrum, electron paramagnetic resonance, redox reaction, resonator/RE-1301 resonator

ABSTRACT: It is known that organic free radicals of the type α , α' -diphenyl- β -picrylhydrazyl (DPPH) are obtained by treating the corresponding hydrazines with lead dioxide or other oxidizing agents. The authors studied the possibility of obtaining these radicals by electrochemical oxidation. An electrolytic cell containing platinum electrodes, as described previously, was placed directly into the RE-1301 radiospectrometer resonator. Measurements were made in acetonitrile, dimethylformamide, dioxane, alcohol, and aqueous-alcoholic solutions with a hydrazine concentration of about 10^{-2} M/liter. Tetramethyl-ammonium iodide and chloride were used as the supporting electrolyte. To improve the resolution of electron paramagnetic spectra, the

Card 1/2

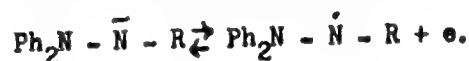
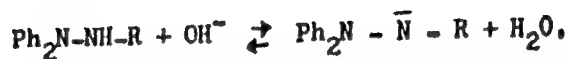
0915

1320

L 31461-66

ACC NR: AP6023111

solutions were degassed by the freezing method. The formation of hydrazyls in electrochemical oxidation of the original compounds can be depicted by the scheme:



Thus, the authors have shown that electrochemical oxidation as well as electrochemical reduction of compounds of the diphenylpicrylhydrazine type lead to the formation of free radicals, the properties and structure of which can be studied by the electron paramagnetic resonance method. [JPRS]

SUB CODE: 07 / SUM DATE: 21Jun65 / ORIG REF: 006 / OTH REF: 004

Card 2/2 mc

KARABASH, A.G.; PEYZULAYEV, Sh.I.; SLYUSAREVA, R.L.; SOTNIKOVA, N.P.;
SMIRNOVA-AVERINA, N.I.; GAMSONOVA, Z.N.; KHAUZ, L.S.; MOROZOVA, G.G.;
ROMANOVICH, L.S.; SMIRENKINA, I.I.; LIPATOVA, V.M.; SAZANOVA, S.K.;
PUGACHEVA, L.I.; USACHEVA, V.P.; VORONOVA, Ye.F.; GORBACHEV, P.D.;
KOSTAREVA, P.A.; KOSTAREVA, N.T.; YELOVATSKAYA, A.I.; KUZNETSOVA, N.N.

Spectrochemical analysis of pure metals for impurities. Fiz.
sbor. no.4:556-562 '58. (MIRA 12:5)
(Spectrochemistry)

KARABASH, A.G.; PEYZULAYEV, Sh.I.; SOTNIKOVA, N.P.; SAZANOVA, S.Y.

Determination of impurities in titanium and titanium dioxide. Trudy
Khm. anal. khim. 12:108-116 '60. (MIRA 13:8)

(Titanium--Analysis)

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SERGEYENKO, T.A.; SILA, V.I.; SOTNIKOVA, O.M.; CHUYKO, O.V.

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Yu.G. Borisynuk) Ministerstva zdravookhraneniya USSR.

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SLONOV, M.N., zooparazitolog; Prinimali uchastiye: BELIKOVA, N.P., parazitolog po iksoodovym kleshcham; TATARINOVA, L.G., virusolog; KARABANOVA, E.M., laborant; SOTNIKOVA, T.I., laborant

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"The polarization during the Deposition of Tin from Acid Solutions of its simple Salts". Zhur. Obshch. Khim., 9, No.5, 1939. Laboratory of Theoretical Electrochemistry, Ural'sk Industrial Institute imeni s.m. Kirov, Sverdlovsk. recd. 27 Jan 1939.

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1ST AND 2ND ORDER																										3RD AND 4TH ORDER																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>Electrode polarization in the simultaneous deposition of two metals from solutions of their complex salts. A. Levin and V. Sotnikova. <i>J. Gen. Chem. (U. S. S. R.)</i> 13, 667-73(1943)(English summary).—In a study of the electrodeposition of Cu and Zn from a soln. of $Cu(OAc)_2$, $Zn(OAc)_2$, NH_4CNS, $NaOH$ and $NaHSO_4$ it was shown that the actual change of cathode polarization is of concentrational character and is expressed by: $\eta = RT/nF \ln(1 - i/i_m)$. The condition under which individual ions are discharged in binary electrolytes depends upon many factors (foremost of which is the stability of the complex salt) in addn. to the polarization and depolarization accompanying the process. G. M. Kosolapoff</p>																																																			
<p>Met. Industrial Inst. in S. N. Kuioy, Sverdlovsk</p>																																																			
<p>ASR-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
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SOTNIKOVA, V.

"The Capacity of the Double Layer and the Determination of the True Surface of the Electrode in the Process of Taking Polarization Curves," 13, No. 9-10, 1943. Mbr., Ural Industrial Inst. im. S. M. Kirow, Sverdlovsk, -1943-.

Effect of surface-active organic compounds (addition agents) on the kinetics of the cathodic deposition of tin. M. Loshkarev, V. Sotnikova, and A. Kryukova (Inst. Chem. Technol., Ivanovo). *J. Phys. Chem. (U.S.S.R.)* 21, 210-219 (1947) (in Russian).—The current-voltage curves of $\text{SnSO}_4 + \text{H}_2\text{SO}_4$ solns. in the presence of surface-active compds. (the cathode being Pt) consist of 3 parts: (1) At low voltages η (below about 0.03 v.) the equation $\eta = 0.029 \log(1 - D/D_0)$ is valid. D is the c.d., and D_0 the "limiting c.d." (2) At voltages between about 0.03 and 0.4 v. the c.d. is equal to D_0 . (3) It rapidly increases at even greater voltages. D_0 is proportional to the concn. of SnSO_4 between 0.03 and 1 *N*, and is increased by stirring. If the cathode makes ω r.p.m., D_0 is nearly proportional to $\omega^{1/2}$; this shows that diffusion detrs. the value of D_0 . At a const. concn. of SnSO_4 (0.25 *N* in 2 *N* H_2SO_4), of surface-active agent (0.005 mol./l.), and of gelatin (1 g./l.), at 18°, D_0 increases from α - and β -naphthol (4×10^{-4} amp./sq. cm.) to thymol (4.5), α -xylenol (12.5), olein, *m*-cresol, resorcinol, Et₃N, PhNH₂, pyrogallol, hydroquinone, and phenol (98×10^{-4} amp./sq. cm.). When D_0 is less than 10×10^{-4} , the Sn deposit is smooth and mirrorlike. Diphenylamine also produces smooth Sn deposits. The effect of these addn. agents is attributed to their adsorption by the Sn deposit. The adsorption reduces the working area of the electrode anil, hence, also the apparent c.d. When the voltage is raised, the adsorbed mols. are displaced by H_2O from the elec. double layer in the same manner as

they are displaced from the surface of Hg far from the electrocapillary max. This explains the third branch of the current-voltage curve. The current efficiency of Sn is 100% up to about 10×10^{-4} amp./sq. cm. for all addn. agents tested.

I. I. Ritzman

L. J. Ritzman

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

Effect of surface-active substances on the cathodic deposition of cadmium. V. Shtukova and M. Loshkarev. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 20, 755-61 (1950).

In an electrolyte CdSO_4 0.25 N, H_2SO_4 0.005 N, the limiting diffusion c.d., i , 15 ma./sq. cm. at 18°, is lowered only to 10-12 ma./sq. cm. by the addn. of 5 g./l. of gelatin. A much more substantial lowering of i is obtained by the addn., along with the gelatin, of 1 g./l. of one of the surface-active compds., Ph_2NH , xylitol, 1- $\text{C}_{11}\text{H}_7\text{OH}$, 2- $\text{C}_{11}\text{H}_7\text{OH}$, or thymol; these depress i to, resp., 9.0, 9.0, 6.8, 6.1, and 4.8 ma. sq. cm. Simultaneous satn. of the soln. with all 5 of the above substances, along with 5 g./l. of gelatin, depressed i to as low as 0.1. Under these conditions, the Cd deposit becomes very bright. Strong effects of lowering of i , increase of the polarization, and brightening of the deposit, are obtained by the addn. of various pairs of the above substances to the gelatin-contg. electrolyte, particularly the pair 1- $\text{C}_{11}\text{H}_7\text{OH}$ + Ph_2NH . The polarization exceeds that accompanying the deposition of metals of the Fe group; it is a linear function of the log of the c.d. In analogy with similar observations on the effects of surface-active substances on the electrodeposition of Sn, these effects are attributed to the formation of a cathode film impermeable to metal cations except at sufficiently high polarizations. It is noteworthy that such a film can form only in the combined presence of a colloid (gelatin) and at least two surface-active compds. N. Thon

A

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The effect of substances that lower the surface tension on
cathodic deposition of cadmium. V. I. Solnikova and M. A.
Loshkarev. *J. Gen. Chem. U.S.S.R.* 20, 703 (1950).
(Engl. translation). See *C.A.* 44, 8264d. R. M. S.

SOTNIKOVA, V. I.

USSR/Chemistry - Electrolysis

Apr 51

"New Electrolytes for Timplating," V. I. Sotnikova,
M. A. Ioshkarev

"Zhur Pri Khim" Vol XXIV, No 4, p 361

Examd dispersion capacity of Stannic sulfate elec-
trolytes with addn of colloid and of α - and β -naph-
thol, thymol, and diphenylamine. Detd porosity of
deposits under same conditions. In accord with
previously established presence of great chem polar-
ization in electrolytic deposition of tin from solns
with above additives, found dispersion capacity and
fine cryst structure of deposits and low porosity

182741

USSR/Chemistry - Electrolysis (Contd)

Apr 51

of deposits. Calcd consumption of additives. With
higher quality of plating as compared to that ob-
tained from phenol baths, consumption of additives
is 30-50 times less than that of phenol under same
conditions.

182741

CA

New electrolytes for tin plating. V. I. Samukova and M. A. Lashkarev. *Zhur. Priklad. Khim.* 24, 301-32, 1951 (Engl. transl.). --Exptl. results are reported from a study of

electrolytes used in plating Sn, Pb, Ag, and similar metals which exhibit low chem. polarization. It was found that satisfactory electrolytic deposition of Sn having high d and low porosity could be obtained by using simple 2-20% solns. congt. a colloid such as gelatin and a surface active agent such as α -naphthol, β -naphthol, thymol, or diphenyl amine. Calcn. of the consumption of these additives during the process of plating indicated this to be 30 to 10 times smaller than the consumption of phenol under similar conditions, and at the same time higher quality deposits were obtained.

D. F. Brown

Effect of H_2O_2 Upon the Potential of the
Oxygen Electrode on the Oxidized Surface of
Steel in Alkaline Solution

S/073/60/026/004/013/018/XX
B023/B064

10-15% H_2O_2 are decomposed within the first 2 hours. During 24 hours, H_2O_2 was almost completely decomposed. Contact with the electrode and increasing pH accelerate the decomposition. The experimentally confirmed dependence of the electrode potential of the passivated oxide steel in the solution saturated with air on the H_2O_2 concentration was expressed by the following equation: $\psi = \text{const} - A \log C_{H_2O_2}$. Fig. 2 shows that the A values

for experiments at which ψ was measured as a function of the increasing H_2O_2 concentration, were smaller than in experiments in which H_2O_2 decomposed. This may be explained by the fact that at repeated exactly dosed introduction of H_2O_2 , the electrode continues oxidizing, and the potential of each point is shifted toward positive values. This shift is the stronger, the higher the H_2O_2 concentration is, which may be seen from Fig. 4:

At certain H_2O_2 concentrations, the curve passes through a minimum and the sign of $\Delta\psi$ is reversed. The collaborators A. N. Burmistrova and Ye. N. Chankova obtained for the oxidized steel electrode in 1.86 N NaOH solution

Card 2/3

AFANAS'YEV, A.S.; BURMISTROVA, A.N.; SOTNIKOVA, V.I.; CHANKOVA, Ye.N.

Effect of hydrogen peroxide on the potential of an oxygen
electrode on oxidized steel in alkaline solution. Part 2:
Passivation of an electrode surface and cyclic polarization.
Ukr.khim.zhur. 27 no.5:624-628 '61. (MIRA 14:9)

1. Dnepropetrovskiy metallurgicheskiy institut, kafedra fizich-
eskoy khimii. (Oxygen) (Polarization (electricity))

AFANAS'YEV, A.S.; BURMISTROVA, A.N.; SOTNIKOVA, V.I.; CHANKOVA, Ye.N.

Effect of hydrogen peroxide on the potential of the oxygen
electrode. Part 3: Kinetic mechanism of the electrode process.
Ukr.khim.zhur. 28 no.4:492-495 '62. (MIRA 15:8)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Hydrogen peroxide) (Electromotive force)

AFANAS'YEV, A.S.; SOTNIKOVA, V.I.; PASHUTA, Yu.S.

Thiourea as an inhibitor of the acid corrosion of steel. Ukr.khim.
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Journal of the Science of
Food and Agriculture
April 1954
Agriculture and Horticulture

(2)
Fractional method of aggregate analysis of soil. ✓ N. E. Bekasovich,
N. B. Krachun, and V. M. Sotnikova (*Pochvoedeniye*, 1953, No. 8,
46-54; *Soils & Fert.*, 1953, 18, 355).—Air-dry soil is fractionated
by dry-sieving and the aggregate stability by wet-sieving after
rapid moistening. The stability of the fraction 0.25—0.5 mm. and
the effect of fractional size on aggregate stability are better indica-
tions of the agronomic characteristics of the soil than is the aggregate
stability determined after capillary moistening or on unfractionated
soil. A. G. POLLARD